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ABSTRACT

The relationship between type of reading instruction (whole language or basal) and reading comprehension as measured by the California Achievement Test (CAT) was investigated. Nineteen third- and fourth-grade teachers from school 5 districts in North Carolina took part in the project with 215 students in the basal group and 200 students in the whole language group. Multiple regression analysis was used to predict the comprehension scale score on the spring 1992 administration of the CAT. Predictor variables included intelligence quotient (IQ), reading instruction group (whole or basal), race, and CAT pretest score. Results indicate that the dependent variable is not significantly related to the method of reading instruction, and there is no interaction effect between reading method and IQ in predicting the CAT comprehension scale score. Two tables present study data. (Author/SLD)

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Effects of Instructional Method on Reading Comprehension

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Abstract

This study investigated the relationship between type of reading instruction, whole language or basal, and reading comprehension as measured by the California Achievement Test (CAT). Nineteen third-and fourth-grade teachers from five school districts in North Carolina took part in the project with 215 students in the basal group and 200 students in the whole language group. Multiple regression analysis was used to predict the comprehension scale score on the spring 1992 administration of the CAT. Predictor variables included IQ, group (either whole language or basal), race, and CAT pretest score. Results indicated that the dependent variable was not significantly related to method of reading instruction, nor was there an interaction effect between reading method and IQ in predicting the CAT comprehension scale score.

Effects of Instructional Method on Reading Comprehension

Reading has long been considered one of the most important skills that a child needs to learn. The ability to read is a basic skill which enables a child to learn information on his/her own and enjoy literature. For these reasons schools wish to employ the best methods of reading instruction available.

The preferable method for reading instruction, especially the basal approach and decoding emphasis versus alternate methods, such as whole language continues to generate controversy (Bracey, 1992; Chall, 1989; Holland & Hall, 1989). Previous research has found that teachers believed the basal reader approach guaranteed a sequenced program of skill mastery (Holland & Hall, 1989; Miller & McKenna, 1989). Whole language proponents state that this approach is preferable because it integrates all language components into the teaching of reading and thus improves comprehension (Holland & Hall, 1989).

In 1977, ninety-five percent of primary teachers in the United States and eighty percent of intermediate grade tachers relied on a basal reader for instruction (Spache & Spache, 1986). Flood and Lapp (1986) reported that over 90% of teachers in the United States used the basal method. However in more recent years, the whole language philosophy of learning has become popular in many primary classrooms.

Review of Literature

Research by Langer (1990) studied the reading achievement of American school children. Approximately 13,00 children in grades four, eight, and twelve who attended public and private schools across the nation participated in the study. Students read a variety of literary and informational passages and then answered a series of multiple choice and open-ended questions. Teachers of fourth-graders who participated in the assessment completed a survey concerning their instructional method. Findings indicated the following: a) average reading competency of students strongly increased from grades 4 to eight and decreased from grades 8 to 12, b) substantial differences existed in socioeconomic status and reading proficiency, c) students reported minimal reading at school or for homework, d) students' interest in books decreased as they progressed through school, e) the main emphasis of beginning reading was on phonics, f) most fourth-grade instruction was based on a single basal reader and g) reasoning activities were not emphasized in class (Langer 1990).

In a review of literature and rebuttal to whole language advocates, Jeanne Chall (1989) stressed that research evidence does not support meaning emphasis over code emphasis instruction for beginning readers. Chall stated that all effective reading programs allow students to learn from a variety of activities concerning reading and writing. Young readers should learn phonics, read good children's literature and write stories. The

emphasis in all of this should always be a love of learning.

Bracey (1992) supports Chall by stating that reseach tends to favor "code-oriented" instruction for reading comprehension. Less able readers have been found to rely more on context clues (i.e. whole language approach) than the more capable readers (Bracey, 1992).

Miller and McKenna (1989) compared decoding and comprehension skills in students taught using the whole language approach versus intensive phonetic instruction. The sample was composed of children in eight first grade classrooms from three low socioeconomic elementary schools. The control group and the experimental group each consisted of 33 children, were administered the Nonsense Word Test (NWT) and the Reading Readiness Test (RRT). No statistically significant difference was found between the mean scores on the NWT which measured decoding skills indicating little effect of instructional method. However, subjects in the experimental group (whole language) attained a significantly higher mean score on the DT which measured comprehension than did the control group (phonetic instruction).

Holland and Hall (1989) studied the effects of basal and whole language approach on reading achievement of first-grade children. Forty-five children in two first grade classrooms participated in the year-long study. The California Achievement Test used as the pretest with the Georgia Criterion Referenced Test used as a posttest. Results showed no significant difference in the total reading achievement of first grade children taught under a whole language approach versus a basal method.

Attitudes toward reading of 110 children from five different classrooms in grades four, five, and six were surveyed specifically examining the use of basal texts versus novels in the teaching of reading (Kramer, 1989). For a one to two week period each teacher replaced use of the basal text with novels in the taching of reading. At the end of the school year, the students rated the basal stories and novels as poor, fair, good, or excellent. Survey results showed that 56% of the children rated the basals as poor, 32% as good, and 12% as excellent, compared with 11%, 23%, 66% rated as poor, good, and excellent, respectively. Additionally, novels were viewed as more interesting (98% of students), prompted better discussion (81%), promoted more silent reading (79%), and resulted in learning more new words (72%).

Summary

Researchers and educators disagree on whether the basal approach or the whole language approach is preferable for the teaching of reading. Because poor reading skills and comprehension continues to be a concern, additional research is needed to assess the effectiveness of instructional method.

Methodology

Because a vital school program uses reading constantly as a tool for communication and hence for learning, this research study was designed to address the following objectives: 1) Which reading instructional method would produce the highest gains in student comprehension, and 2) Would students with different levels of IQ benefit most from one method of instruction?

In order to conduct this research project, the researchers submitted a proposal to the North Carolina Small Grants-School Based Research Program provided through North Carolina State University. Upon notification of funding the researchers coordinated two workshops for participating teachers. Teachers and administrators who were anticipating working with the project were notified of grant funding and the upcoming participant workshops.

The workshops were designed to ensure that teachers in the project had background information about the methodology to be used, as well as to reaffirm a common language and core of knowledge for each teaching method. Two intensive two hour workshop on comprehension strategies for teachers were conducted, one addressing the basal method and one the whole language approach.

Sample

Following the workshops, three teachers, two using the whole language method and one using the basal method withdrew from the project because they felt their methods did not adhere primarily to either approach. As a result, nineteen teachers from eleven schools in five North Carolin school districts took part in the project.

Nine teachers used basal instruction in their classrooms which resulted in a total sample size of 215 children composed of 156 third- and 59 fourth-graders. Ten teachers used whole language instruction producing a sample size of 200 students with 133 third-graders and 67 fourth-graders.

To ensure annonymity, teachers assigned an ID number to each student in their class in the fall of 1991. Teachers submitted demographic and academic information on each student using the student ID number.

Instrumentation

The dependent variable in the study was reading comprehension as measured by the comprehension portion of the California Achievement Test (CAT) (Tiegs & Clark, 1970). The CAT is a norm-and criterion-referenced achievement test measuring reading, mathematics, and language skills. Internal-consistency for subtests ranges from 0.59 to 0.95, with the majority of coefficients between 0.75 and 0.90. Test-retest reliability for total battery scale scores ranges from 0.52 to 0.94, while content validity of the CAT is good (Salvia & Ysseldyke, 1985).

Data for the independent variables came from the Test of Cognitive Skills (TCS) (Test of Cognitive Skills Technical Report, 1983) and demographic information provided by the classroom teachers.

The TCS is an ability test designed to assess a students academic aptitude; the Cognitive Skills Index (CSI) has the same properties as an intelligence test (Test of Cognitive Skills Technical Report, 1983). According to the Technical Report (1983), validity was established using the product-moment intercorrelation coefficients and related summary data for the normed sections of Level 12 through 19 of the CAT/C in combination with the appropriate levels of the TCS. The Kuder-Richardson Formula 20 (KR-20) was computed to establish internal consistency with KR-20's ranging between 0.75 and 0.88.

Data Collection and Procedures

Since most of the third-grade students in the study had not taken the CAT in the spring of 1991, they were given the reading portion of Form F in October of 1991. The pretests were scored by the researchers. In order to equate the scores with third- and fourth-graders who took the test in the spring of 1991, all pretest scores were interpolated into normal curve equivalents. This was done on the recommendation of the testing staff of the California Achievement Test.

IQ tests for students who did not have an IQ score were given in March of 1992 using the Test of Cognitive Skills (TCS). The IQ tests were scored by the researchers.

CAT scores resulting from the spring 1992 testing of all third- and fourth-grade students was used as a post-test measure of reading comprehension. In May of 1992 teachers submitted either comprehension percentile or scale scores for each student in their class. Percentile scores were interpolated into scale scores.

Finally, teachers were asked to complete a form on student variables of chronological age, sex, and race. A graduate student was employed to assist in the coordination and data analysis for the project. The graduate assistant was also available to copy and send educaitonal materials that teachers requested relative to the study.

All data was entered into files on the VAX system at Lenoir-Rhyne College. The SPSS-X statistical package was used to analyze the data. Multiple regression analysis was used to predict the dependent variable (the posttest CAT Comprehension Scale Score) from the pretest score, IQ, and teaching method.

A Multivariate Analysis of Variance with the posttest scale score as the dependent variable and IQ and group as factors was run to test for an interaction effect between group and IQ on the posttest scale score. For the Multivariate Analysis of Variance students IQ scores were recoded into three groups, those having

an IQ of 84 or lower, those having a score of 85-115, and those having an IQ of 116 or higher.

Results

There were 215 students in the basal instruction group and 200 students in the whole language group. Ethnicity of the students in each group is listed in Table 1.

Insert Table 1 about here

The basal group was composed of 50% female students and 50% male students. The whole language group had a higher percentage of females (52%) than males (48%). Seventy-three percent of the basal group was in third grade and 27% were in fourth grade. Sixty-seven percent of the whole language group was in third-grade and 33% were in fourth-grade.

Tht mean intelligence quotient of students in the basal group and the whole language group was 105 and 104.9, respectively. The pretest normal curve equivalent of student reading comprehension scores on the CAT test was 54.02 for basal group and 49.7 for the whole language group.

The mean posttest scale scores of the basal group was 696 and 681 for the whole language group. A stepwise multiple regression analysis was used to predict the posttest scale score using the variables of group, race, pretest normal curve equivalent, and IQ. Results of the multiple regression analysis did not indicate that teaching method was a reliable predictor of the posttest CAT comprehension scale score (see Table 2). Type of teaching method was not significantly related to the posttest score. The regression analysis did indicate that the pretest normal curve equivalent and IQ could be used to predict 50% of the variance in the posttest reading comprehension scale score.

Insert Table 2 about here

A stepwise multiple regression analysis was also run for each grade level. Results were similar to those found for the total sample. The pretest scale score and IQ were the only variables which could be used to predict the posttest score. The group variable was not significant for grade three or grade four.

Another objective of the study was to test whether students of different IQ levels benefit from one teaching method more than another. This was not confirmed in this study. The results of the multivariate analysis of variance with posttest scale score as the dependent variable and group and IQ as factors showed no significant interaction between IQ and group on the posttest scale score.

Discussion

The results of this study are similar to those of Holland and Hall (1989) who found that there was no significant difference between reading achievement scores of first grade students who were taught under a basal approach and those taught under the whole language approach. This confirms the notion that a major factor in the classroom setting is the teacher and how he/she implements the curriculum to meet the needs of the students as well as how he/she inspire the students love of learning. The type of reading instruction whether basal or whole language, while important, does not in and of itself guarantee increased academic achievement. Simply changing reading instruction from basal approach to whole language will not improve academic achievement and as Chall (1989) states reliance on whole language without phonics instruction will hinder reading achievement.

Some educators believe that within the next decade whole language programs will replace basal readers. The argument being that basal readers and whole language programs are incompatible and cannot coexist. However, research does not support the idea that the preferred method for teaching reading is exclusively the phonics approach or the whole language approach (Bracey, 1992). Rather, the teaching of reading should be a balanced approach which integrates both instructional methods.

Although certain aspects of basal readers are incompatible with the whole language philosophy, there are certain issues on which they coincide. For example, both approaches include excellent stories written by the nation's best children's authors (Farr, 1988). Most basal readers encourage teachers to choose from the activities included rather than using all of them. In addition, writing activities and a wide range of creative applications are now standard fare in most basals. Basal readers are constantly changing, and will continue to do so.

The main issue most likely will be that teachers and administrators need to work together so that instructional programs are understood as being more than a particular set of materials. Basals may then become what they were designed to be, useful tools for helping teachers carry out effective reading instruction not total programs. It is important not to become blinded by the issue of whole language versus basal. Instead, focus should be placed on effectively training teachers to guide, encourage and challenge students' ideas, through use of a variety of materials which encourage children to become active and interested learners.

Implications for Further Research

1. Additional research needs to be conducted to examine the effects of instructional method on not only comprehension and achievement, but also attitudes and self-concept.

2. A longitudinal study should be conducted to compare reading achievement of students taught using the basal versus whole language approach. Students should be examined not only in the lower elementary grades (K-4), but also in the middle and high school grades.

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Table 1

Ethnicity of Students in Each Group

	Basal Group	Whole Language Group
Asian	0.5%	1.5%
Black	5.0%	8.5%
Hispanic	0.5%	1.0%
White	94.0%	89.0%

Table 2

Multiple Regression Analysis Statistics After Step 2

Multiple R =		0.704			
R Square =		0.495			
Adjusted R Square =		0.493			
Significance of F =		0.0000			
Variables in the Eqaution					
Variable	B	SE B	Beta	T	Sig T
Pretest NCE	1.96	0.200	0.476	9.79	0.000
IQ	1.52	0.253	0.292	6.01	0.000
(Constant)	420.98	21.420		19.65	0.000